

Appl. No. 10/693,296
 Amendment Under Under 37 CFR 1.116
 Expedited Procedure
 Examining Group 3652

PATENT

REMARKS/ARGUMENTS

Claims 18-19 are canceled by this response. Accordingly, claims 1-17 and 20-43 remain pending.

Embodiments in accordance with the present invention relate to apparatuses for handling a disc-shaped wafer. In particular, the claimed embodiments recite apparatuses including a rotatable driver to engage and rotate a wafer:

[52] Friction drive roller 9 has a friction drive band capable of acting on the periphery of semiconductor wafer 2 to drive the latter by angular displacement, preferably through adhesion to at least part or all of a generatrix of the surface forming the periphery 4 of wafer 2, to obtain a good coefficient of friction. Drive band 27 on roller 9 can be realized, for example, by means of an O-ring 25 made of an elastic material, preferably hard, for example, one with a Shore hardness rating of 70 to 80, mounted on drive wheel 26, as shown in FIG. 6. (Emphasis added)

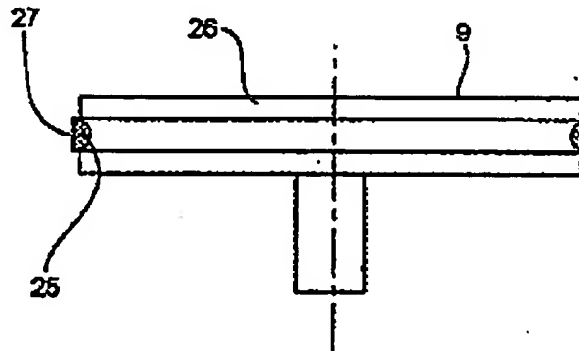


FIG. 6

Pending independent claims 1 and 31 accordingly recite as follows:

1. An apparatus for accessing and gripping disc-shaped wafers supported in a housing and having peripheral position indicators, comprising:
 . . . a rotatable driver mounted on said rigid structure at a position to engage said periphery of said wafer when supported by said rotatable wafer supports, and selectively operable to rotate said wafer while supported by said rotatable wafer supports to a selected radial position. (Emphasis added)

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31. An apparatus for accessing and gripping a plurality of adjacent disc-shaped wafers supported in a housing and having peripheral position indicators simultaneously, comprising:

... a rotatable driver mounted on each said rigid support structure at a position to engage a said periphery of a said wafer when supported by said rotatable wafer supports, and selectively operable to rotate said wafer while supported by said rotatable wafer supports to a selected radial position.
(Emphasis added)

The pending claims stand finally rejected under 35 U.S.C. § 103(a) as purportedly obvious based upon U.S. Patent Number 6,116,848 to Thomas et al. ("the Thomas patent"), taken in combination with U.S. Patent Number 6,275,748 to Bacchi et al. ("the Bacchi patent"). These claim rejections are overcome as follows.

In order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added; MPEP 2143). Here, however, there is absolutely no teaching in any of the references relied upon by the Examiner, regarding a rotatable driver configured to engage and rotate a wafer.

The Thomas patent is the primary reference relied upon by the Examiner. The Examiner has identified element "50" of the Thomas et al. as the "rotatable driver". However, careful review of the Thomas patent reveals element 50 to be a "solenoid", whose function is to contact and clamp the wafer in place:

when operating, the electromagnetic coil in the solenoid 50 causes the plunger disposed therein to move forward or backward between the platform 14 toward the base 12. (Emphasis added; col. 4, lines 53-56)

Thus solenoid 50 of the Thomas patent is configured to move in only a single dimension, along the length of the wafer handling apparatus. There is absolutely no teaching or even suggestion in the Thomas patent regarding use of solenoid 50 to rotate a wafer. The solenoid element of the Thomas patent cannot reasonably be relied upon by the Examiner as disclosing the rotatable driver element of the pending claims.

In the latest office action, the Examiner alternatively referenced element "40" as purportedly disclosing a rotatable driver. Element "40" of the Thomas patent appears to refer to

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a mount between which a metal band "38" passes for actuating gripper contacts "48" (See col. 4, lines 31-44).

These gripper contacts "48" of the Thomas patent, however, do not engage and drive rotation of the wafer in the claimed manner. Instead, the Thomas patent describes at most that gripper contacts 48 are merely freely rotatable in order to accommodate the wafer:

contacts 48 may be constructed using free rollers, as well as fixed alignment posts, to provide more flexible wafer gripping action. (Emphasis added; col. 4, lines 44-47)

There is absolutely no teaching or suggestion, in the Thomas patent, regarding the claimed rotatable driver element responsible for driving rotation of the wafer.

Applicants' note that the most recent office action included the following comment regarding arguments previously raised:

the fact that drivers do not touch rotate a wafer placed upon wafer supports is a distinction that Applicant has not claimed. However, it is noted that rotatable drivers comprise shafts that rotate or actuators which drive rollers into contact. Broadly construed a rotatable driver comprises among others a driver that rotates into position to contact a wafer or a driver that imparts rotational force to rotate a wafer. (Emphasis added; Office Action mailed 7/14/05, page 15, lines 5-10)

Applicants respectfully disagree with the Examiner's equation of passively rotating elements with the claimed driver element, whose active rotation is described in the instant application.

Pending independent claims 1 and 31 recite a rotatable driver element. This element is not described in the instant specification as merely passively rotatable, but rather as actively rotated and therefore responsible for driving rotation of a wafer placed upon wafer supports. As emphasized above and highlighted in Applicants' previous response, the claimed rotatable driver element contacts a periphery of the wafer and actively rotates the wafer into position. This characteristic is well described in the instant application, and there is no need here to amend the claims to provide any further description.

Turning now to the Bacchi patent also relied upon by the Examiner, this patent describes a wafer handler including an active contact point, which like the solenoid of the Thomas patent is

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selectively retractable/extendable to release/engage the wafer. There is no teaching or even suggestion in the Bacchi patent regarding the claimed rotatable driver element.

Based upon the failure of the prior art relied upon by the Examiner to teach or suggest each of the elements of the pending claims, it is respectfully asserted that these claims are not obvious. The pending obviousness claim rejections are improper and should be withdrawn.

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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